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THE GYPSY MOTH

A look at the fight against one of this country's major pests of trees.



U.S. DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE

PICTURE STORY 252
APRIL 1972



ON THE COVER: This male gypsy moth is held in a special holding device while his reaction to various lures is recorded. This was one of a series of experiments that led to the recent development of "disparlure," a synthetic lure that exactly duplicates the scent female moths emit to attract males. (0770C680-13). ABOVE LEFT: Female moths attach their egg masses to tree trunks and other hard surfaces--including mobile homes and recreational vehicles. The velvety egg masses are covered with buff or yellowish hairs from the abdomen of the female and average about 1 1/2 inches long and 3/4 inches wide. Each egg mass contains up to 1,000 eggs. (ST-5321-15). ABOVE RIGHT: In their later stages, gypsy moth caterpillars are from 1 1/2 to 2 1/2 inches long and sport pairs of red and blue dots on their backs. Each mature caterpillar eats one square foot of leaves every 24 hours. (BN-7965). BELOW: Campers and mobile home owners can help stop the spread of gypsy moths by carefully inspecting their vehicles and camping equipment before traveling from infested to uninfested areas. In the past, the pests have often achieved long-distance artificial spread by attaching their egg masses and "cocoon" to such equipment. (0771K843-19).

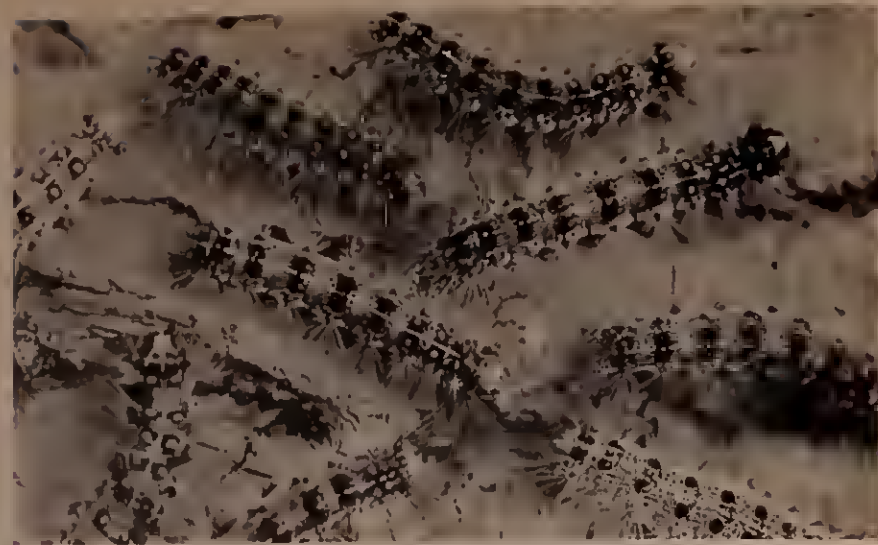


GYPSY MOTHS have been in this country since 1869, when imported specimens escaped during experiments being performed by a Massachusetts naturalist. Extensive Federal-State efforts confined gypsy moth destruction to New England, New York and Pennsylvania for many years. But, in 1958, concern over the possibility of environmental contamination caused a switch from large-scale spraying of DDT to limited application of less persistent insecticides.

In recent years, gypsy moth populations have built up to alarming levels, with spread occurring throughout much of the

Northeast and into parts of the South. The nearly 2 million acres of trees defoliated in 1971 doubled the acreage stripped in 1970, was six times more than in 1969, and was twelve times more than recorded in 1968.

The gypsy moth is a European insect and is one of the world's worst forest pests. They are harmless in the moth stage, but as caterpillars feed on the leaves of forest, shade, ornamental and fruit trees. A single complete defoliation can kill some softwood trees; two or more defoliations can kill many types of hardwoods.



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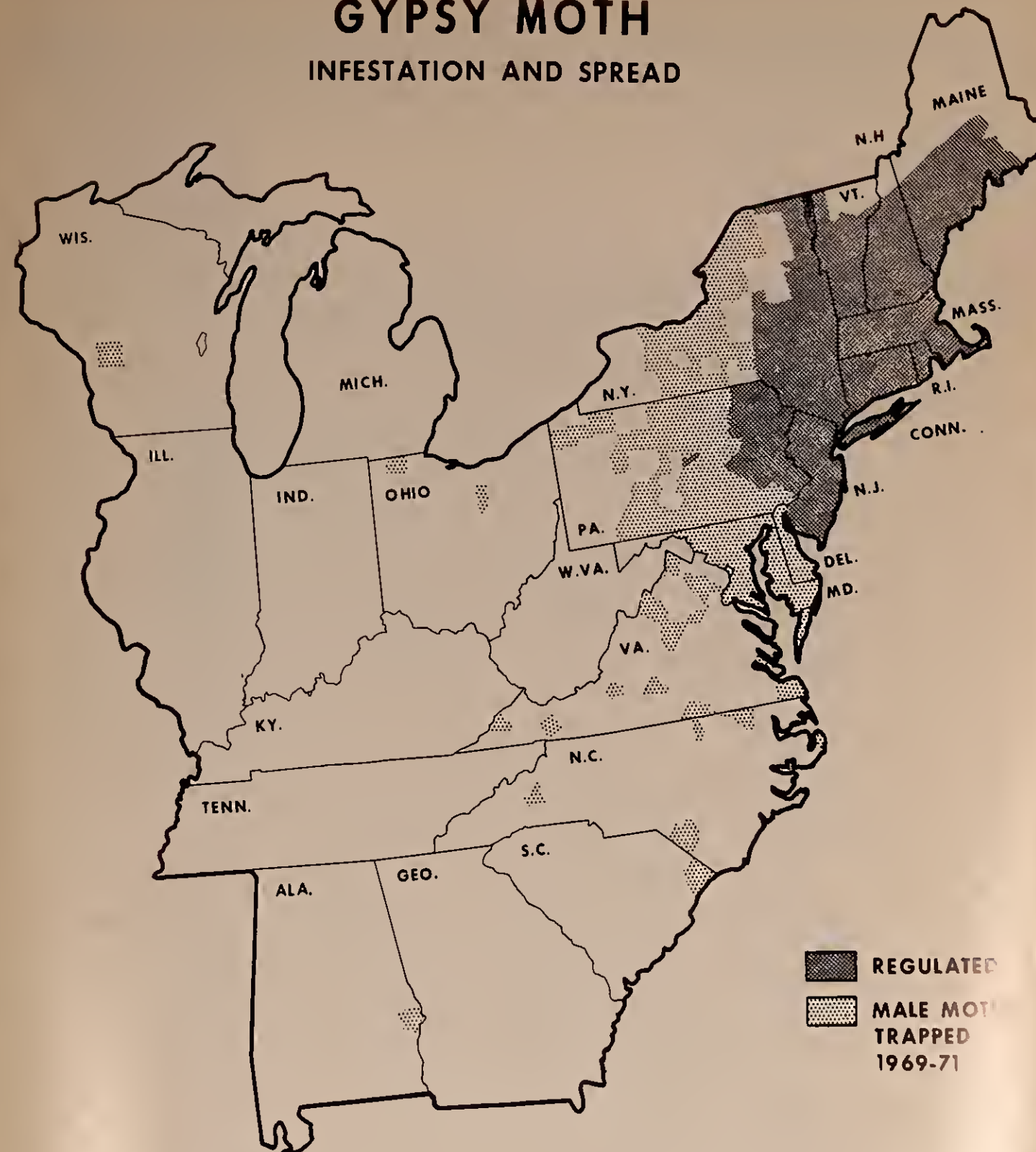
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GYPSY MOTH INFESTATION AND SPREAD



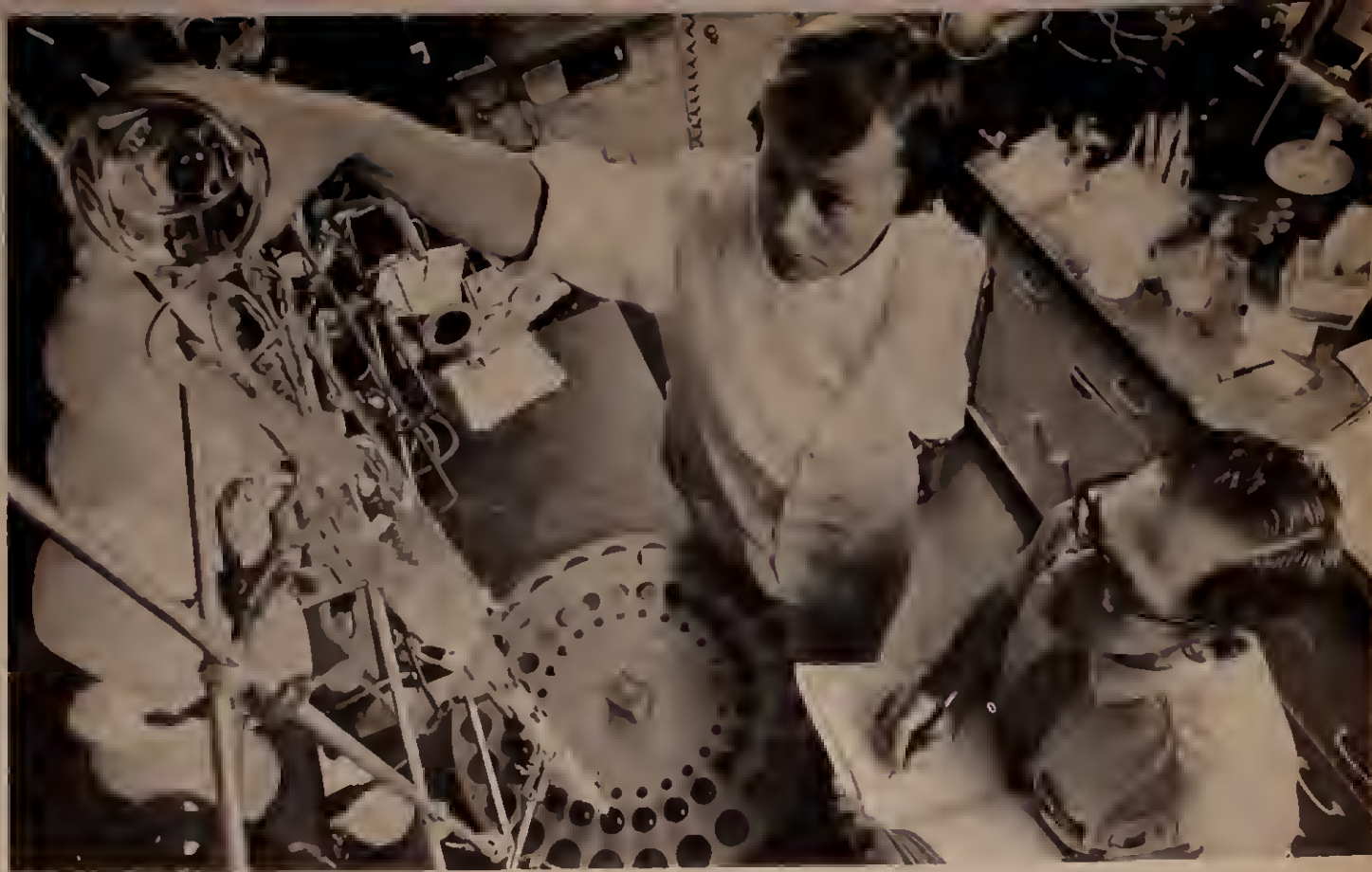
This map shows the 1970-71 spread of gypsy moth from the general infested area in the Northeast. (8N-39001).



ABOVE: This stretch of highway near Barnstable, Mass., is an artificial "Berlin Wall" that shows dramatically how destructive the gypsy moth can be. The forest on the right side of the road was defoliated by hungry caterpillars, while the trees on the left side were protected with chemicals. (BN-8259). BELOW LEFT: USDA does not undertake, or cooperate in any spray program until Department scientists have evaluated the environmental, biological and economic impact of applying different pest control methods versus the consequences of not taking any action at all. (0771K847-20). BELOW RIGHT: Gypsy moth infestations leave their mark on urban and suburban areas, as well as forests. Caterpillars cover sidewalks and get into water reservoirs, stores, homes and swimming pools. They make parks and other outdoor recreational facilities temporarily unusable and lower property values with tree-killing defoliations. (BN-11547).



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ABOVE: USDA has an intensified research and development program underway to provide nonchemical weapons to help bring the gypsy moth under control. Biological controls expected to be operational in the next five years include: a bacterial insecticide, *Bacillus thuringiensis*; a virus that is a critical factor in halting natural outbreaks; and the use of the artificial sex attractant, diaphorin, to confuse male moths and prevent mating. (0870C752-16).
 BELOW LEFT: Hundreds of thousands of gypsy moth traps are scattered throughout the eastern United States each year. The traps (which are baited with an artificial sex attractant) provide data on pest spread and population levels required for planning and conducting USDA and State regulatory activities. (8N-38774). BELOW RIGHT: Natural enemies of the gypsy moth are being studied in the hope that man can learn to "manage" these biological agents. A battery-operated transistor radio signalling device is used to study movement patterns and mortality factors of white-footed deer mice—an important predator of gypsy moth caterpillars. The tiny device is being inserted into a mouse's body cavity by a USDA scientist. (8N-39025). The fly on the pencil is a natural enemy of gypsy moths in Europe. USDA and the infested States annually cooperate in importing, rearing and releasing this and millions of other insect enemies of the forest pest. ST-5321-9

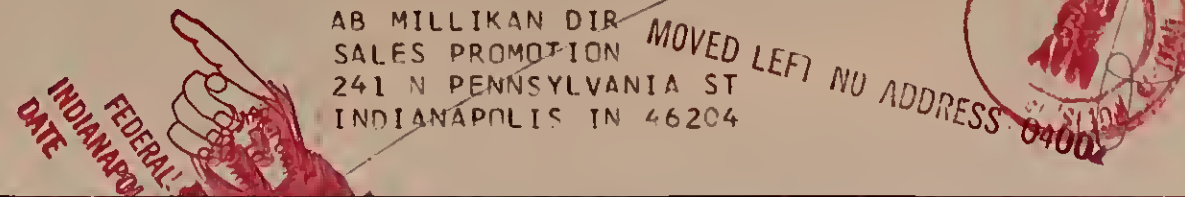


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Two USDA scientists are shown, Aug. 3, 1970, in a Cape Cod, Mass., park that has been damaged by gypsy moth caterpillars. Such defoliation harms trees in two ways. The cumulative shock of one or more defoliations can, in itself, kill some trees. In most cases, loss of foliage is not fatal. But, trees are left in a weakened condition, increasing their susceptibility to damage from other insects and plant diseases. (0770C682-4).

